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ABSTRACT

The purpose of this research was to determine whether a relationship exists between personality characteristics of teachers and their success in implementing the Individually Prescribed Instruction Program (IPI) (ED 030 584). All 43 teachers in IPI programs in Oregon, Washington, Montana, and Idaho were used as subjects and each was rated on a Scale of Teacher Implementation of Individually Prescribed Instruction, with personality characteristics determined through Cattell's 16 Personality Factor questionnaire. Five specific hypotheses were tested, with the following results: 1) it was concluded from a multiple correlation that personality characteristics are not significantly correlated with success in IPI; 2) an analysis of variance technique was used with an F-ratio to compare the means of each personality factor of teachers with high and low success scores, and no significant difference was found; 3) a chi-square test of independence showed that age is not a significant factor; 4) a chi-square test of independence showed that the number of years teachers remain in a position is independent of their success in IPI; 5) a chi-square test of independence showed that the number of years of teaching experience is independent of success in IPI. A more extensive study is recommended and the suggestion is made that IPI is so effective that the effects of differences among teachers are overcome. The rating scale of Teacher Implementation is included in an appendix. (Author/MBM)

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PERSONALITY CHARACTERISTICS OF TEACHERS IN RELATION TO PERFORMANCE IN AN INDIVIDUALLY PRESCRIBED INSTRUCTION PROGRAM

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ABSTRACT

Personality Characteristics of Teachers in Relation to Performance in an Individually Prescribed Instruction Program

by

Alfred P. Wilson

Project Director: Homer M. Johnson

The purpose of this research was to determine whether a relationship exists between personality characteristics of teachers and their success in implementing the Individually Prescribed Instruction program.

All teachers who were teaching in Individually Prescribed Instruction programs in the states of Oregon, Washington, Montana, and Idaho were used as subjects for the study. The 43 teachers were located in five schools at Hagerman, Idaho; Seattle, Washington; Havre, Montana; Beaverton, Oregon; and Corvallis, Oregon.

Each teacher was rated through the use of a Rating Scale of Teacher Implementation of Individually Prescribed Instruction. Personality characteristics were determined through the use of Cattell's 16 Personality Factor questionnaire.

Hypothesis and findings

To accomplish the objectives of the study, the following specific hypotheses were tested:

Hypothesis 1. Personality characteristics of teachers as measured by the Sixteen Personality Factor questionnaire are not significantly correlated with their success in Individually Prescribed Instruction.

This hypothesis was tested by computing a multiple correlation between the 16 personality factors and the success score as measured by the Rating Scale of Teacher Implementation of Individually Prescribed Instruction. An F-ratio of .883 was not significant and the null hypothesis was accepted. It was therefore concluded that the personality characteristics of teachers, as measured by the Sixteen Personality Factor questionnaire, are not significantly correlated with success in implementing Individually Prescribed Instruction.

Hypothesis 2. The Sixteen Personality Factor scores of all teachers in the study scoring in the upper 25 percent on the Rating Scale of Teacher Implementation of Individually Prescribed Instruction will not differ significantly from the Sixteen Personality Factor scores of teachers in the lower 25 percent of the Rating Scale of Teacher Implementation of Individually Prescribed Instruction.

To test this hypothesis, an analysis of variance technique was used with an F-ratio being computed to compare the means of each personality factor of teachers with high and low success scores. Significant differences did not exist at the .05 level between the more successful groups on any of the 16 personality factors. Therefore, the null hypothesis was accepted.

Hypothesis 3. The age of teachers is not significantly associated with their success in Individually Prescribed Instruction, as measured by the Rating Scale of Teacher Implementation of Individually Prescribed Instruction.

This hypothesis was tested by using a chi-square test of independence. The study showed that at the .05 level the null hypothesis could not be rejected. It was therefore concluded that age is not a significant factor in successful implementation of the Individually Prescribed Instruction program.

Hypothesis 4. The mean number of years teachers remain in a position is not significantly associated with their success in Individually Prescribed Instruction as measured by the Rating Scale of Teacher Implementation of Individually Prescribed Instruction.

A chi-square test of independence was used to test this hypothesis and the null hypothesis was accepted. From this study it can be concluded that the mean number of years teachers remain in a school district is independent of their success in Individually Prescribed Instruction Program.

Hypothesis 5. The number of years of teaching experience is not significantly associated with teaching success in Individually Prescribed Instruction as measured by the Rating Scale of Teacher Implementation of Individually Prescribed Instruction.

A chi-square test of independence was used to examine this hypothesis and the null hypothesis was accepted. It was therefore concluded that the number of years of teaching experience is independent from success in implementing the Individually Prescribed Instruction Program.

CHAPTER I

INTRODUCTION

Our society is in a time of accelerating change. We have seen our lives affected by medical, social, political, economical, industrial, and cultural developments. Breakthroughs in science have enabled us to conquer one dreaded disease after another, to stage spectaculars in outer space, and to produce nuclear energy. Changes that affect people have occurred throughout the history of man, some resulting from natural events, others being brought about by man himself. Change is not new.

> What is new is the sharply increasing rate which changes have occurred during recent years, the variety and kinds of changes that have been taking place, and the role of man in the process of effecting changes. (Morphet, Johns, and Reller, 1967, p. 9)

Representatives from universities, professional organizations, foundations, regional research and development centers, government and numerous school districts are involved in bringing about extensive, planned, educational changes within the schools. "Never in the past has there been a situation quite like the 1960's. Education reform now seems to be a recognized need in all segments of society." (Anderson, 1966, p. 6)

Teachers throughout the nation are being called upon to implement innovations which are, to a large extent, defined by administrators within their organization. Teacher roles may well be changed drastically within a very short span of time. Changes in content or method of instruction are threatening to some teachers, for it may mean having to learn new concepts, acquire new techniques, attend workshops or undergo intensive inservice training (Moorhead, 1966). It is indicated by research that being able to change will be extremely difficult for many individuals (Holt, 1964; Perkins and Conover, 1965); even individuals who seriously want to innovate must often combat powerful personality factors which tend to preclude change (Bennis, Beene, and Chine, 1962). Yet, the implementation of change in the classroom depends upon the ability of teachers to accept and apply new programs (Kemp, 1963; Johansen, 1967).

One of the new programs of education receiving widespread interest is Individually Prescribed Instruction (I.P.I.), a program in which the main teacher functions are defined as diagnosing student needs and prescribing resources to meet any deficiencies. This program is a specific system of individualized instruction. Individually Prescribed Instruction was developed and is under the direction of the University of Pittsburg's Research and Development Center, and Research for Better Schools, Inc., both funded under Title IV of the Elementary and Secondary Education Act.

> Harold Howe II, Commissioner of Education, says that the research findings on Individually Prescribed Instruction promises that "truly individualized education will soon be possible for each child." (Conlin, 1967, p. 20)

Already 2,000 school districts have asked to become a part of Individually Prescribed Instruction (Anonymous, 1967).

The Problem

It seems safe to assume, therefore, that I.P.I. will be implemented in many school districts; that teachers will play a prime part in implementation; that success or failure will, to a large extent, depend upon the success or failure of the teacher; and that the success a teacher will have in implementing the Individually Prescribed Instruction Program (which involves change in teacher behavior) may be dependent upon his personality characteristics.

The problem, then, is that we do not know whether a relationship exists between certain personality characteristics of teachers and their success in implementing Individually Prescribed Instruction.

Purposes and Objectives

It was the purpose of the study to determine whether a relationship existed between personality characteristics of teachers as measured by Cattell's 16 Personality Factor Inventory and their success in implementing the Individually Prescribed Instruction program.

The objectives of the study were:

1. To develop a rating scale that would be used to determine the degree of success in teaching the Individually Prescribed Instruction program.

2. To determine if there was a significant relationship between sixteen personality factors of teachers and their ratings of success in Individually Prescribed Instruction program implementation.

3. To determine if there was a significant difference between the personality factors of teachers rated more successful in implementing and teachers rated less successful in implementing the Individually Prescribed Instruction program.

4. To determine if there was a significant association between age of teachers and their ratings of success in implementing the Individually Prescribed Instruction program.

5. To determine if there was a significant association between the mean number of years teachers have been in a position and their ratings of success in implementing the Individually Prescribed Instruction Program.

6. To determine if there was a significant association between the number of years of teaching experience and ratings of success in implementing the Individually Prescribed Instruction program.

CHAPTER II

REVIEW OF LITERATURE

Development of Individually Prescribed Instruction

For many years, teachers and administrators in the United States have expressed a need for a way of providing systematic plans for instruction on an individual basis. Harold Shane (Henry, 1962) stated that schools have tried dozens of ways to provide for individual differences and are continuing their search for more effective methods of satisfying the needs of each pupil.

One of the new programs developed to meet the individual needs of students is Individually Prescribed Instruction. Robert Glaser is the director of a United States Office of Education Learning Research and Development Center (LRDC) located at the University of Pittsburg which specializes in the research and basic design of new educational technology.

The ideas behind I.P.I. began on a small scale. During the school year 1963-64, the Learning Research and Development Center and the Baldwin-Whitehall School District, located in the suburbs of Pittsburg, initiated an experimental project to investigate a system of individualized instruction in the Oakleaf Elementary School. This was the direct result of a series of previous exploratory studies, which began in 1961-62. As described by Neill: "The work started with the use of programmed instruction in an intact classroom unit in which the teaching practices were oriented around the conventional grade-by-grade program of learning." (Neill, 1968, p. 3) The Learning Research and Development Center concluded that the individualization features of programmed instruction could not be achieved unless more flexibility was found than was available in the typical approach to instruction. As a result of this conclusion, a second set of studies, using programmed instruction and other materials in a more flexible context, was instituted.

The I.P.I. development which grew out of these exploratory studies centered around staff of the Oakleaf School and began in 1963, with major direction being given by Dr. Glaser, the Learning Research and Development Center project director, Dr. Bolvin, and several professors of education from the University of Pittsburg. After the Individually Prescribed Instruction program had been developed and tried for two years in the Oakleaf school, Research for Better Schools, a Regional Educational Laboratory, was created. The purpose of Research for Better Schools, Incorporated, was to

move I.P.I. from the research environment at the Oakleaf School to other schools for field testing (Scanlon, n.d.). Since 1966, the number of schools involved has increased, under the Director of Research for Better Schools, to 97 schools. Five Individually Prescribed Instruction schools are presently located in the northwestern United States.

Many educators are enthusiastic about Individually Prescribed Instruction (Conlin, 1967). Past U. S. Commissioner of Education, Harold Howe II, told the 1968 annual conference of the American Association of School Administrators that results so far are impressive.

> Many students are performing two to four grade levels above the norm for their age, and the atmosphere of self-directed learning appears to boost attendance and virtually eliminates discipline problems. (Howe, 1968, p. 145)

Although final results are not yet in, Commissioner Howe said, "This technique appears to offer real hope for success with culturally deprived youngsters as well as for improving the education of average and gifted students." (Howe, 1968, p. 146)

Overview of Individually Prescribed Instruction

Individually Prescribed Instruction is a specific system of individualizing instruction that depends heavily on the teacher. It consists of planned programs of study tailored to the needs and characteristics of each student. Teachers use a set of behavioral objectives correlated with curriculum materials and diagnostic instruments, along with instructional time and teaching techniques designed:

> 1. to enable each student to work at his own rate through units of study in a learning sequence,
> 2. to develop in each pupil a demonstrable degree of mastery,
> 3. to develop self-initiation and self-direction of learning,
> 4. to foster the development of problem-solving thought processes, and
> 5. to encourage self-evaluation and motivation for learning. (Moshy, 1968, p. 59)

The teacher, in order to meet student needs, has been given detailed specifications of educational objectives; a guideline of methods and materials to attain these objectives; a method for careful determination of each student's competence in a given subject; procedures for individual daily evaluation and guidance of each pupil; provisions for frequent monitoring of student performance in order to be informed of progress toward an objective; and a method for continual evaluation and change in the program (Moshy, 1968).

Many instructional functions and responsibilities of I.P.I. are new and different. The teacher will spend much of his time in evaluating the pupil's records, diagnosing his needs, and preparing individual learning prescriptions for each child. He will spend most of his time working with individual pupils. He will also participate in frequent staff conferences to discuss individual pupils, evaluate and adapt materials and procedures, and make future plans for each child. Little time will be spent in lecturing to groups of pupils (Neill, 1968).

These activities require a distinct change from the typical classroom approach to instruction. The I.P.I. teacher must often behave differently than he was behaving in his traditional approach to instruction if he is going to be successful in implementing I.P.I.

Personality Characteristics and Change

This step by step approach to individualization requires a significant change in the instruction process. The ability to meet these demands may depend upon certain personality characteristics of the teachers involved.

Investigation of personality characteristics and how they relate to change in education is not new. For a number of years researchers have studied various groups of educators in an attempt to determine what relationship may exist between personality characteristics and change.

A basic theme, in terms of the personality characteristics of educators, seems to be emerging which indicates that differences in behavior may be predicted through analysis of personality characteristics. Giles (1967) for example thinks that personality is a key factor in the change process. Carnie (1966) reported a variety of separate research studies which he thought substantiated the notion that personality is related to one's resistance to change. These studies found that open-minded groups were faster at solving problems and showed more responsiveness to experimental situations.

Cattell (1964-1965) has indicated that some researchers are beginning to recognize that individual differences can be assessed by personality measures. He defines personality as "that which permits a prediction of what a person will do in a given situation." (Cattell, 1950, p. 2)

Research by Erickson (1965) and Kemp (1963) indicates that because of certain personality characteristics change may be very difficult for some individuals. Holt (1964) indicated that the implementation of change hinges upon the willing acceptance of new programs by teachers, and Trump claimed that "those who urge change in teaching arrangements must understand the power of the forces that cause teachers to conform to conventional practices." (1963, p. 11) Combs has stated that the teacher is first and foremost a person. "The fact of his person-ness is the vehicle through which whatever teaching he does is accomplished." (1965, p. 68)

A number of studies attempting to correlate common personality characteristics and success in education have been completed during recent years. Hemphill, Griffiths, and Frederiksen (1962), in studying principals' performance in dealing with simulated administrative problems reported many orderly relationships existed between personality factors and performance. They suggested that research into the relationships between personality variables and performance variables would be valuable in the selective process for matching candidates with jobs.

Bennis, Beene, and Chine (1962) indicated that individuals who seriously desire to change may be unable to do so because of certain precluding personality factors. Glines (1967) implied that the emotional upheaval involved in significant change is one reason that administrators and teachers fail to innovate. Getzels, Lipham, and Campbell (1968) thought that some people can withstand conflicts which may occur in the change process that would drive others "wild"; and thinks this is due to differences in personality. Lortie (1964) reported that some people resist change even though the rationale for it seems unchallengable. Such may be the case with teachers who are involved in implementing Individually Prescribed Instruction.

Teachers who are involved in implementing I.P.I. are confronted with change as they depart from what may have been a traditional approach to instruction and assume new roles as teachers of I.P.I. It would seem that the change required of these teachers and their ability to cope with this change may be associated with certain personality factors as measured by Cattell's Sixteen Personality Factor questionnaire.

A considerable amount of research into how personality characteristics may be associated with change and other aspects of education has been done using Cattell's Sixteen Personality Factor (16 P.F.) questionnaire.

White (1965), using Cattell's 16 P.F. questionnaire, compared university educational administrators, educational researchers, and the general public. The mean scores of both the administrators and researchers differed from the general public mean at or beyond the .01 level on 10 of 16 personality factors. Administrators were found to be more outgoing, intelligent, conscientious, venturesome, tender-minded, experimenting, controlled, trusting, placid, and relaxed. The researchers were more intelligent, assertive, tender-minded, imaginative, experimenting, and self-sufficient. In comparing the scores of educational researchers and administrators, the administrators scored significantly higher (.01 level) on scales which measured tendencies to be out-going, conscientious, venturesome, and self-controlled.

Miller (1956) reported that the more helpful resident hall supervisors, as perceived by the students living in the halls, exhibited a significantly high score (.01 level) on the Sixteen Personality Factor questionnaire in the areas of emotional instability, seriousness, and conscientiousness. Cattell and Drevdahl (1955), in studying administrators and researchers found administrators tended to be more

outgoing, venturesome, imaginative, experimenting, controlled and self-sufficient as measured by Cattell's Sixteen Personality Factor questionnaire. Lawrence (1967), on reporting an unpublished Ph.D. dissertation by Fogarty, stated that, in a comparison of the relationships between personality characteristics as measured by Cattell's Sixteen Personality Factor questionnaire and centralization of decision-making by superintendents of schools, it was found that the superintendents tended to be more emotional, sober and serious, simple and unpretentious, warm and sociable, sensitive, absent-minded, self-sufficient, intense, excitable and had a higher general intelligence than the typical adult male. Hendrix (1964) has indicated that junior college faculty members with academic rank had higher scores (.01 level) than faculty members within the same discipline who did not have rank on Cattell's personality factors of self-sufficiency, general mental alertness, experimenting and suspicion.

Several studies using Cattell's 16 P.F. questionnaire, originating in the Department of Educational Administration at Utah State University, under the direction of Homer M. Johnson, have investigated the identification of educators' personality factors as related to their tendencies toward innovation. Bos (1966) found that educators expected implementors of change to be intelligent, emotionally stable, adaptable, experimenting, and enthusiastic. Hinman (1966), in investigating the relationship between the personalities of principals and their implementation of innovation in schools, found that principals who implement innovations scored significantly higher (.05 level) than non-innovators on the factors of assertive, happy-go-lucky, and venturesome as measured by Cattell's 16 P.F. questionnaire and their willingness to accept and implement change in education. They also reported a difference in the personality characteristics of high innovative superintendents and low superintendents. The high innovative superintendents were reported to be significantly more outgoing, more assertive, more venturesome, more imaginative, more experimenting, and more relaxed than the low innovative superintendents.

Burdick (1963) correlated Cattell's Sixteen Personality Factor questionnaire with success in student teaching as rated by supervising teachers. She reported significant correlations (.05 level) between success in student teaching and the personality characteristics on four factors: venturesome, controlled, trusting, and placid.

Ryan (1964) stated that evidence about teachers' characteristics is in relation to their teaching effectiveness accumulating and will accumulate more rapidly in the future. He further predicted that these studies will eventually be directly useful to teacher education and to practicing administrators and teachers.

Summary

In summary, Individually Prescribed Instruction is one specific approach to individualizing instruction which may have a wide spread

effect in education. Teachers, who ultimately determine success in implementing the I.P.I. program, are involved in change as they depart from what may have been a traditional approach to instruction and assume new roles as teachers of I.P.I.

It appears that change, and a persons ability to cope with change, is associated with certain personality characteristics. In addition it appears that certain personality characteristics, as measured by Cattell's Sixteen Personality Factor questionnaire, are associated with various roles within the field of education.

It seems reasonable therefore, to further investigate the association between teachers' personality characteristics, as measured by Cattell's Sixteen Personality Factor questionnaire, and their success in implementing the Individually Prescribed Instruction program.

CHAPTER III

METHOD OF THE STUDY

Hypothesis

The purpose of this study was to determine the relationship of the personality characteristics of teachers as measured by the 16 P.F. questionnaire to the teachers' performance in implementing the Individually Prescribed Instruction program. Specifically the objectives were:

1. To determine if there is a relationship between 16 personality factors of teachers, as measured by the 16 P.F., and their rated success in Individually Prescribed Instruction program implementation.

2. To determine if there is a difference in mean scores on the 16 P.F. personality factors of the teachers rated most successful in implementing and teachers rated least successful in implementing the Individually Prescribed Instruction program.

3. To determine if there is an association between age of teachers and their rated success in implementing Individually Prescribed Instruction.

4. To determine if there is an association between the mean number of years teachers remain in a position and their rated success in implementing the Individually Prescribed Instruction program.

5. To determine if there is an association between the number of years of teaching experience and their rated success in implementing the Individually Prescribed Instruction program.

In order to meet these objectives, the following hypotheses were tested:

1. Personality characteristics of teachers as measured by the Sixteen Personality Factor test are not significantly correlated with their success in Individually Prescribed Instruction.

2. The mean Sixteen Personality Factor scores of all teachers in the study rated in the upper 25 percent using the Rating Scale of Teachers Implementation of Individually Prescribed Instruction will not differ significantly from the mean Sixteen Personality Factor scores of teachers rated in the lower 25 percent using the Rating Scale of Teachers' Implementation of Individually Prescribed Instruction.

3. The age of teachers is not significantly associated with their rated success in Individually Prescribed Instruction as measured by the Rating Scale of Teachers' Implementation of Individually Prescribed Instruction.

4. The mean number of years teachers remain in a position is not significantly associated with their rated success in Individually Prescribed Instruction as measured by the Rating Scale of Teachers Implementation of Individually Prescribed Instruction.

5. Number of years of teaching experience is not significantly associated with rated teaching success in Individually Prescribed Instruction as measured by the Rating Scale of Teachers Implementation of Individually Prescribed Instruction.

Subjects of the Study

The subjects of the study were all teachers who taught Individually Prescribed Instruction programs in the states that are part of the Northwest Regional Educational Laboratory, funded under Title IV of the Elementary and Secondary Education Act of 1965. These states include Oregon, Idaho, Washington, and Montana (Alaska presently does not have any teachers working in the Individually Prescribed Instruction program). The teachers were clustered in five schools: Hoover Elementary, Corvallis, Oregon School District; Hagerman Elementary, Hagerman, Idaho School District; Rainier View Elementary, Seattle, Washington School District; Bonny Slope Elementary, Beaverton, Oregon School District; Rocky Bay Elementary, Havre, Montana School District.

All 43 teachers who were teaching Individually Prescribed Instruction in the northwest schools agreed to cooperate in this research. The teachers ranged in age from 22 to 68 with a mean age of 37.13 (Table 1). They were in schools involving from 5 to 12 full time Individually Prescribed Instruction teachers. The teachers had remained in their school districts from 1 to 26 years with a mean of 6.76 years (Table 2). They ranged in teaching experience from 1 year to 30 years with a mean of 10.13 years (Table 3). The 1968-69 school year was the initial year for teaching Individually Prescribed Instruction for all teachers, and was the first year of I.P.I. operation in schools located in the northwest.

The data for the research study were gathered late in the 1968-69 school year. After clearance was received to do research in the five schools, the Sixteen Personality Factor questionnaire and Personal Data Sheets were mailed to each of the school principals. To insure consistancy of conditions under the advisement of the investigator, then administered the test according to the guidelines for testing administration. After each teacher had completed both Form A and B of Cattell's Sixteen Personality Factor questionnaire and the Personal Data Sheet, they were returned to the investigator.

Scores on the Rating Scale of Teacher Implementation of Individually Prescribed Instruction were gathered in the spring of 1969,

Table 1. Grouped frequency of teachers by age

Teachers' age	Frequency of teachers
65-70	1
61-64	2
56-60	3
51-55	3
46-50	3
51-45	5
36-40	5
31-35	2
26-30	7
21-25	12
	N = 43

Mean = 37.13 Range = 22 to 68
Mode = 22 Interval = 5
Median = 37

Table 2. Grouped frequency distribution of teachers by years in present school district

Teachers' age	Frequency of teachers
25-27	1
22-24	2
19-21	1
16-18	2
13-15	2
10-12	3
7-9	6
4-6	5
1-3	21
	N = 43

Mean = 6.67 Range - 1 to 26
Mode = 1 Interval = 3
Median = 4

Table 3. Grouped frequency distribution of teachers by years of experience

Years of experience	Frequency of teachers
28-30	1
25-27	3
22-24	1
19-21	2
16-18	4
13-15	6
10-12	3
7-9	4
4-6	7
1-3	12
	N = 43

Mean = 10.34
Mode = 1
Median = 8
Range = 1 to 30
Interval = 3

through personal visits by the Director of Individually Prescribed Instruction programs at the Northwest Regional Laboratory, the Director of Individually Prescribed Instruction programs for each school, the Director of Individually Prescribed Instruction programs at the Hagerman Individualized Learning Center, and the investigator.

These four people observed each teacher for approximately two hours. Each of the three judges (the investigator did not rate) rated each teacher during this two hour period. After the observations and ratings for each school had taken place, the team discussed the ratings with the I.P.I. director of each school. The initial ratings by the I.P.I. Director of each school were used as points of discussion for training the school director and were not used as data for the study. The I.P.I. Director of each school then made two separate observed ratings. These were made at two week intervals after the initial ratings, and this data was used in the study.

In summary, each teacher was rated four times involving three judges, one initial rating by the Director of I.P.I. for the Northwest Regional Laboratory, one initial rating by the Director of I.P.I. for the Hagerman Individualized Learning Center, and two later ratings at two week intervals by each school Director.

Complete (100 percent) returns from all members of the population were obtained by numerous follow-up letters, telephone conversations, and one personal visit.

Instrumentation

The instruments used for gathering data included a Rating Scale of Teacher Implementation of Individually Prescribed Instruction, and Forms A and B of the Sixteen Personality Factor questionnaire.

The personality measurement instrument

The Sixteen Personality Factor questionnaire (see Appendix D) was employed to study the personality characteristics that might correlate with the ratings of success in implementing I.P.I. The questionnaire has bi-polar scales and was developed in the Laboratory of Personality Assessment and Group Behavior at the University of Chicago by Raymond B. Cattell. The personality traits are set up as opposite ends of continua for 16 primary personality dimensions: i.e., aloof vs. warm-outgoing; dull vs. bright; emotional vs. mature; submissive vs. dominant; glum-silent vs. enthusiastic; casual vs. conscientious; timid vs. adventurous; tough vs. sensitive; trustful vs. suspecting; conventional vs. eccentric; simple vs. sophisticated; confident vs. insecure; conservative vs. experimenting; dependent vs. self-sufficient; lax vs. controlled; and stable vs. tense.

Both Form A and Form B of the Sixteen Personality Factor test, each consisting of 187 items and including 10 to 13 items for each factor, were given to each respondent. Split-half reliabilities

for each of the 16 factor scales range from .71 to .93, averaging about .84. Internal construct validities range from .73 to .96, averaging approximately .88. (Cattell, 1957, p. 2)

This instrument was also selected because of its ease of administration, lack of threat to the respondents, and previous successful use at Utah State University.

The rating scale

The Rating Scale of Teacher Implementation of Individually Prescribed Instruction was developed by the investigator in cooperation with personnel from the Hagerman Individualized Learning Center and the Northwest Regional Educational Laboratory.

The rating scale was based upon the teacher behaviors necessary for successful implementation of I.P.I. as defined by the program developers. Research for Better Schools, Incorporated, and the University of Pittsburg's Research and Development Center, both funded under Title IV, Elementary and Secondary Education Act of 1965, were the developers. The behaviors were defined in the course outline which is presently being used for the training of teachers in the Individually Prescribed Instruction program. The behaviors were arrived at after five years of examining and defining teacher functions as related to student achievement in the Oakleaf Elementary School near Pittsburg, Pennsylvania, and more recently in 26 other schools from California to Connecticut (Education U.S.A., 1968).

In a review of the course outline, 66 behaviors were defined and statements describing them were written. In a review by staff members in the Department of Educational Administration at Utah State University, 12 statements which were redundant were eliminated, leaving 54 statements of behavior.

The 54 items were placed under eight headings and sent to the Individually Prescribed Instruction Director at the Northwest Regional Educational Laboratory and the five program implementors. These judges had been through an extensive one-month training period with Research for Better Schools, Inc., and all had studied the volumes that define the necessary behaviors for success in Individually Prescribed Instruction.

The judges reviewed the items on the scale to check agreement with the course outline. They also discussed the scale with the I.P.I. Director for the Northwest to decide if there were further duplications of behaviors or if important behaviors had been left from the scale. As a result of this review, the scale was revised and reviewed again. The final instrument consisted of 41 statements of behavior listed under seven headings.

The statements of behavior were set up as a Likert-type scale (see Appendix C). A choice of five responses ranging from "always" to "never" were provided to indicate the frequency with which a teacher engaged in the behavior.

The items were randomly alternated in a positive and negative direction in order to eliminate response set. Each item was included only once and received the same weighting. Items were scored 1 through 5 (with 5 indicating a high rating), and total points were then used to rank the subjects.

During the field test, ratings were performed by two judges on seven teachers located at Hagerman, Idaho. The teachers rated during the field test did not see the rating during or after the rating sessions since they were included as a part of the population for the study. The raters used to field test the instrument were also different from those who were used to do the rating for the study.

The reliability coefficient for the Rating Scale was calculated by using the Pearson (Product Moment) correlation and employed the test-retest method. The correlation was .99.

Method of Analysis

To test the first hypothesis, which had to do with the correlation between the 16 P.F. factors and rated teacher success in Individually Prescribed Instruction, a multiple correlation (R) was computed. Multiple correlation was selected because of the assumption that personality characteristics are not independent of each other in their relationship to ratings of success in Individually Prescribed Instruction. That is, the differences in the ratings (dependent variable) may be contributed to by a combination of differences in the sixteen personality factors (independent variables).

A part variance component was computed to indicate the proportional contribution that one personality factor made to the variability in the success scale with the contributions of the other 15 personality factors to the dependent variable held constant. The F-ratio was used as a test of significance. The accepted level of significance was the .05 level.

The second hypothesis concerning differences in personality between the teachers rated more successful and those rated less successful in Individually Prescribed Instruction was tested by using analysis of variance, with the F-ratio evaluated at the .05 level of significance.

The third hypothesis, in regard to the association of age and ratings of success, was tested by using a chi-square test of independence. Individually Prescribed Instruction teachers were grouped by age and by placement in low, medium, or high levels of success based upon their ratings on the Rating Scale of Teacher Implementation of Individually Prescribed Instruction.

The fourth hypothesis, in regard to the association of years in a position and success, was also tested by using a chi-square test of independence. Individually Prescribed Instruction teachers were grouped by mean number of years they had remained in a position and by their placement into low, medium, or high levels of success based

again upon their ratings on the Rating Scale of Teacher Implementation of Individually Prescribed Instruction.

To test the fifth hypothesis, which involved the association of experience and rated success, a chi-square test of independence was again computed. Teachers were grouped by number of years teaching experience and by their placement into low, medium, or high levels of success based upon the Rating Scale of Teacher Implementation of Individually Prescribed Instruction.

CHAPTER IV

ANALYSIS

The purpose of the study was to determine the relationship between personality characteristics of teachers and their success in implementing the Individually Prescribed Instruction program.

A multiple correlation and part correlation was computed between the personality factors and success in Individually Prescribed Instruction teaching. An analysis of variance technique was used to test for differences in personality between more successful and less successful teachers in Individually Prescribed Instruction. Chi-squares were computed to test the association between degree of success and the descriptive variables: age, years of experience in a district, and total years of teaching experience.

Hypothesis Number 1

The correlation of personality with degree of rated success

Hypothesis 2: Personality characteristics of teachers as measured by the Sixteen Personality Factor test are not significantly correlated with their rated success in Individually Prescribed Instruction.

This hypothesis was tested using the Multiple correlation between the 16 personality factors and the success score as measured by the Rating Scale of Teacher Implementation of Individually Prescribed Instruction. Multiple correlation has been defined by Guilford as indicating "the strength of relationship between one variable and two or more others taken together." (1964, p. 420)

McNemar, in writing of multiple correlations, stated that:

> We predict one variable by using several other variables as a team of predictors, or when, if causation can be assumed, an attempt is made to analyze the variance for one variable into components or parts attributable to the action of two or more other variables. (1962, p. 177)

The multiple correlation, R, was .58 resulting in a variance of .34. However, an F-ratio of 2.05 was necessary for the null hypothesis to be rejected, and the F-ratio for the obtained R

was .883. Therefore, in this study the personality characteristics of teachers, as measured by the Sixteen Personality Factor questionnaire, are not significantly correlated with their success in Individually Prescribed Instruction.

Although the multiple R was not statistically significant, further analysis of the data might be valuable to the reader.

Table 4. Multiple correlations between sixteen personality factors and success in Individually Prescribed Instruction

Dependent variable--success in Individually Prescribed Instruction	R	Explained Variance	F*
Independent variables--sixteen personality factor scores	.58	.34	.833

*df = 16/26, for P = .05, F = 2.05

Table 5 shows the Beta weights of each independent variable. Beta weights, also referred to in the literature as Beta coefficients, indicate the contributions of the independent variables in the regression equation to variability in the dependent variable. They demonstrate the comparative contribution of the independent variables as to the variance of the criterion. Also shown are the part variance components, which indicate the proportional contribution that each personality factor made to the difference in the success score.

The formula used to determine the part variance components is the same as that used by Lawrence (1967), as suggested by Dr. Herbert W. Eber. Eber, located at the Sourthern Branch of the Institute for Personality and Ability Testing, defined the part variance components as "the products of a Beta weight times its corresponding correlation." (1969, tape recording) He used the formula $\frac{B^2}{B^2+K^2}$, B^2 being the Beta weights squared and K being $1-R^2$, for his computation. The part variance component is the contribution each independent variable makes with the rest of the variables held constant. It might also be explained as a part covariance component.

Since the Lawrence (1967) study, Dr. Eber has made two changes in his method of computing part variance components. Tables 10 and 11 in the Appendix show the new changes and the results from this study computed with those changes.

The F-ratios shown in Table 5 are the tests of significance of the contribution of the part variance components to the dependent variable. Six of the personality factors contributed significantly (at the .05 level) to variability in the success score. These factors (underlined) are F (sober--happy-go-lucky), H (shy--venturesome), L (trusting--suspicious), N (forthright--shrewd), Q_1 (conservative--experimenting), and Q_4 (relaxed--tense). Factors F, L, and Q_4 were significant at the .01 level and Factor H was significant at the .001 level.

Hypothesis Number 2

Personality differences between teachers with the highest and lowest ratings of success scores

Hypothesis 2: The 16 personality factor scores of all teachers in the study rated in the upper 25 percent on the Rating Scale of Teacher Implementation of Individually Prescribed Instruction will not differ significantly from the 16 personality factor scores of teachers rated in the lower 25 percent on the Rating Scale of Teacher Implementation of Individually Prescribed Instruction.

This hypothesis was tested with analysis of variance, with an F-ratio computed to compare the 16 P.F. means of teachers with high and low ratings of success scores.

Table 6 reveals that significant differences on any of the 16 personality factors do not exist at the .05 level between groups rated more and less successful; therefore, the null hypothesis was not rejected. The mean profiles in Figure 1 reflect similarity between the two groups.

Hypothesis Number 3

The association between mean years in a position and rated success

Hypothesis 4: The mean number of years teachers remain in a position is not significantly associated with their success in Individually Prescribed Instruction as measured by the Rating Scale of Teacher Implementation of Individually Prescribed Instruction.

This hypothesis was tested using a chi-square test of independence.

Teachers were classified into three levels of success and two levels of age, and the chi-square obtained was .749 with two degrees of freedom (Table 7). The chi-square figure necessary for significance was 5.99, thus the null hypothesis is not rejected.

Table 5. Beta weights and part variance components computed from correlating each personality factor and degree of success

Personality Factor	Beta Weight	Part Variance Component	F
A	(-).199	(-).040	2.325
B	.209	.044	2.550
C	(-).033	(-).001	.067
E	.148	.022	1.293
F	(-).451	(-).203	9.643**
G	.033	.001	.069
H	.559	.312	13.156***
I	(-).228	(-).052	2.992
L	(-).449	(-).202	9.580**
M	.228	.051	2.980
N	(-).264	(-).070	3.901*
O	.086	.007	.457
Q_1	(-).265	(-).070	3.948*
Q_2	.014	.000	.012
Q_3	(-).080	(-).006	.389
Q_4	.337	.114	6.012**

*Alpha = .05
df = 1/41
Reject if F = 3.225

**Alpha = .01
df = 1/41
Reject if F = 5.165

**Alpha = .001
df = 41
Reject if F = 12.6

a. The (-) sign is associated with the part correlation from which the part variance components was computed. It means that to the extent that this part correlation exists at all, it is negative.

b. The computational formula for the part variance component is

$$\frac{B^2}{B^2 + K^2}$$

B^2 = Beta weight squared, $K = 1-R^2$

Table 6. Comparison of the raw score means of personality factors for more successful and less successful teachers in Individually Prescribed Instruction

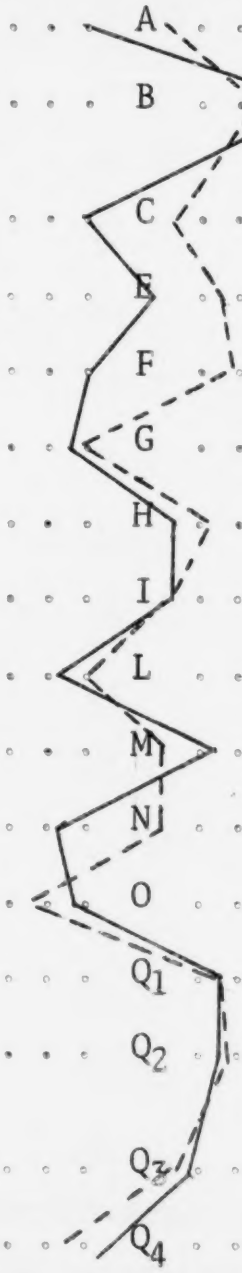
Personality Factor	(1) Low Success		(2) High Success		F Ratio
	Mean Score N = 11	Standard Deviation	Mean Score N = 11	Standard Deviation	
A	19.73	6.23	22.27	7.04	0.81
B	19.27	1.90	17.55	2.50	3.32
C	31.00	4.98	34.10	6.88	1.46
E	18.90	5.99	22.45	7.95	1.39
F	24.45	10.76	31.36	8.09	2.90
G	26.64	4.63	27.36	3.93	0.16
H	27.54	11.14	29.73	8.87	0.26
I	22.91	2.43	23.00	6.78	0.00
L	12.18	5.06	14.00	4.31	0.82
M	25.91	5.13	24.18	6.06	0.52
N	19.27	4.38	21.18	2.18	1.67
O	19.27	6.94	16.73	5.52	0.91
Q_1	21.27	4.24	20.91	4.48	0.04
Q_2	23.64	3.80	22.18	5.31	0.55
Q_3	23.64	3.59	23.27	6.34	0.03
Q_4	23.55	7.99	21.36	7.72	0.42

*Alpha = .05
df = 1/20
Region of Rejection F = 4.35

**Alpha = .01
df = 1/20
Region of Rejection F = 8.10

Figure 1. A comparison of the mean personality profiles for more successful and less successful teachers in Individually Prescribed Instruction.

Low Score Description	Standard Ten Score (Sten) 1 2 3 4 5 Average 6 7 8 9 10	High Score Description	Standard Mean More	Standard Score Less
Reserved	A	Outgoing	4.9	5.7
Less Intelligent	B	More Intelligent	9.0	7.3
Affected by feelings	C	Emotionally stable	5.0	5.9
Humble	E	Assertive	5.5	6.4
Sober	F	Happy-go-lucky	5.0	6.8
Expedient	G	Conscientious	4.6	4.8
Shy	H	Venturesome	5.7	6.2
Tough-minded	I	Tender-minded	5.7	5.8
Trusting	L	Suspicious	4.3	5.0
Practical	M	Imaginative	6.4	5.6
Forthright	N	Shrewd	4.6	5.6
Placid	O	Apprehensive	4.8	3.9
Conservative	Q_1	Experimenting	6.8	6.6
Group Dependent	Q_2	Self-sufficient	6.5	6.6
Undisciplined Self-Conflict	Q_3	Controlled	5.9	5.8
Relaxed	Q_4	Tense	5.3	4.6



_____ = More successful teachers, n = 11

- - - - - - - - - - - - - - = Less successful teachers, n = 11

It can be concluded that the age of teachers in this study of Individually Prescribed Instruction is independent of their rated success in teaching the Individually Prescribed Instruction program.

Hypothesis Number 4

The association between mean years in a position and rated success

Hypothesis 4: The mean number of years teachers remain in a position is not significantly associated with their success in Individually Prescribed Instruction as measured by the Rating Scale of Teacher Implementation of Individually Prescribed Instruction.

This hypothesis was tested by using a chi-square test of independence (Table 8). The teachers were classified into three levels of success, and into two levels of experience within their district. The years within a position categories were 1-5 and 6-26. The success levels were high, middle, and low.

The chi-square obtained was .952 with two degrees of freedom. The chi-square necessary for statistical significance at the .05 level was 5.99; therefore, the null hypothesis is not rejected.

It can be concluded that, for this study, the mean number of years a teacher remains in a school district was independent of their rated success in teaching in the Individually Prescribed Instruction program.

Hypothesis Number 5

The association between mean years of teaching experience and rated success

Hypothesis 5: The number of years of teaching experience is not significantly associated with teaching success in Individually Prescribed Instruction as measured by the Rating Scale of Teacher Implementation of Individually Prescribed Instruction.

A chi-square test of independence was used to examine this hypothesis (Table 9). Teachers were grouped into three levels of success and into two groups of total experience. The total experience groups were 1-10 years and 11-30 years. The success grouping was again high, middle, and low.

The computed chi-square was .113, well below the 5.99 level needed for rejection at the .05 level with two degrees of freedom. It can, therefore, be concluded that there is no significant association between mean number of years of teaching experience and success in Individually Prescribed Instruction.

Table 7. Relationship between age and success in Individually Prescribed Instruction

Age	Level of Success			Total	Percent
	High	Middle	Low		
Below Mean (22-37)	5 (5.88)	11 (11.23)	7 (5.88)	23	53
Above Mean (38-68)	6 (5.12)	10 (9.77)	4 (5.12)	20	47
Total	11	21	11	43	
Percent	25.58	58.84	25.58		100

For P = .05, x^2 = 5.99

Note: The top number in each cell represents the observed frequency. The number in parentheses represents the expected frequency.

Table 8. Relationship between teaching years in present school district and success in Individually Prescribed Instruction

District Experience	Level of Success			Total	Percent
	High	Middle	Low		
Below Mean (1-5)	6 (6.65)	12 (12.70	8 (6.65	26	60
Above Mean (6-26)	5 (4.35)	9 (8.30)	3 (4.35)	17	
Total	11	21	11	43	
Percent	25.58	48.84	25.58		100

x^2 = .952; For P = .05, x^2 = 5.99

Note: The top number in each cell represents the observed frequency. The number in parentheses represents the expected frequency.

Table 9. Relationship between total years of teaching experience and success in Individually Prescribed Instruction

Total Experience	Level of Success			Total	Percent
	High	Middle	Low		
Below Mean (1-10)	6 (6.14)	11 (11.72)	7 (6.14)	24	56
Above Mean	5 (4.86)	10 (9.28)	4 (4.86)	19	44
Total	11	21	11	43	
Percent	25.58	48.84	25.58		100

$x^2 = .113$; for $P = .05$, $x^2 = 5.99$

Note: The top number in each cell represents the observed frequency. The number in parentheses represents the expected frequency.

CHAPTER V

SUMMARY, DISCUSSION, AND CONCLUSIONS

Summary

The purpose of this research was to determine whether a relationship existed between personality characteristics of teachers as measured by the 16 P.F. and their rated success in implementing the Individually Prescribed Instruction program. The specific objectives were:

1. To determine if a relationship existed between 16 personality factor scores of teachers and their rated success in Individually Prescribed Instruction program implementation.

2. To determine if there was a difference in mean personality factor scores of the 25 percent of the teachers rated most successful in implementing I.P.I., and those of the 25 percent of teachers rated least successful in implementing I.P.I.

3. To determine if there was an association between age of teachers and their rated success in implementing Individually Prescribed Instruction.

4. To determine if there was an association between the mean number of years teachers had remained in a position and their rated success in implementing the Individually Prescribed Instruction program.

5. To determine if there was an association between the number of years of teaching experience and rated success in implementing the Individually Prescribed Instruction program.

The investigator used all teachers who were teaching in Individually Prescribed Instruction programs in the states of Oregon, Washington, Montana, and Idaho as subjects for the study. The 43 teachers were located in five schools at Hagerman, Idaho; Seattle, Washington; Beaverton, Oregon; Havre, Montana; and Corvallis, Oregon.

A Rating Scale of Teacher Implementation of Individually Prescribed Instruction was developed by the investigator with assistance from personnel at the Hagerman Individualized Learning Center and the Northwest Regional Educational Laboratory. The rating scale was used by six raters to determine the degree of success in Individually Prescribed Instruction.

The instrument had a total of 41 items arranged in seven categories. The items had been selected as the necessary behaviors for

successful implementation by the developers of the Individually Prescribed Instruction program. The behaviors are defined in the course outline, edited by Moshy (1968) titled Teaching in I.P.I., which is presently used for training teachers in Individually Prescribed Instruction program implementation.

Forms A and B of the Sixteen Personality Factor questionnaire were used to determine the teachers' personality factors. The questionnaire, developed in the Laboratory of Personality Assessment and Group Behavior, at the University of Chicago, by Raymond B. Cattell is based on factor analysis. It measures 16 factors or traits of the respondent's personality.

Hypothesis and findings

To accomplish the objectives of the study, the investigator tested the following specific hypotheses:

1. Personality characteristics of teachers as measured by the Sixteen Personality Factor questionnaire are not significantly correlated with their rated success in Individually Prescribed Instruction.

This hypothesis was tested by computing a multiple correlation between the 16 personality factors and the success score as measured by the Rating Scale of Teacher Implementation of Individually Prescribed Instruction. The multiple correlation coefficient was .58, the variance was .34. To determine if the multiple correlation was significantly greater than 0, an F-ratio was computed.

The F-ratio was .88 as compared to the 2.05 necessary for rejection of the null hypothesis. Consequently it was concluded that the personality characteristics of the teachers, as measured by the Sixteen Personality Factor questionnaire, were not significantly correlated with their rated success in implementing Individually Prescribed Instruction.

2. The Sixteen Personality Factor scores of all teachers in the study scoring in the upper 25 percent on the Rating Scale of Teacher Implementation of Individually Prescribed Instruction will not differ significantly from the Sixteen Personality Factor scores of teachers in the lower 25 percent of the Rating Scale of Teacher Implementation of Individually Prescribed Instruction.

To test this hypothesis, analysis of variance was used to compare the means on each personality factor of teachers with high and low ratings of success. Significant differences did not exist at the .05 level between the more and less successful rated groups on any of the 16 personality factors.

3. The age of teachers is not significantly associated with their success in Individually Prescribed Instruction, as measured by the Rating Scale of Teacher Implementation of Individually Prescribed Instruction.

This hypothesis was tested by using a chi-square test of independence. The study showed that at the .05 level, the null hypothesis could not be rejected.

4. The mean number of years teachers remain in a position is not significantly associated with their success in Individually Prescribed Instruction as measured by the Rating Scale of Teacher Implementation of Individually Prescribed Instruction.

A chi-square test of independence was used to test this hypothesis, and the null hypothesis was not rejected.

5. The number of years of teaching experience is not significantly associated with teaching success in Individually Prescribed Instruction as measured by the Rating Scale of Teacher Implementation of Individually Prescribed Instruction.

A chi-square of independence was used to examine this hypothesis, and the null hypothesis was not rejected.

Conclusions and Discussions

The following conclusions seem evident as a result of the analysis conducted in this study. A word of caution seems appropriate. In as much as the population tested was small (N-43) and one of the instruments newly developed, the ability to generalize to a population larger than the sample used is questionable. With these limitations in mind, the following are presented as conclusions to this study:

1. Apparently, personality characteristics of teachers involved in implementing I.P.I. are not related to their degree of success in implementing the program.

2. Apparently, teachers who rated more successful are no different than those rated less successful with regard to various personality characteristics related to successful implementation of the I.P.I. program.

3. Apparently, age of teachers is not associated with successful implementation of Individually Prescribed Instruction.

4. Apparently, the number of teachers remain in a school district is independent of their success in implementing Individually Prescribed Instruction.

5. Apparently, the number of years of teaching experience is not associated with rated success in implementing the I.P.I. program.

The following discussion is presented with the purpose of exploring certain factors which may have effected the findings, which may in turn assist other researchers who may be exploring this area of education. Admittedly, much of what follows might

be referred to as insight via retrospection; however, it is felt that this discussion is sufficiently important to be included in this final report.

Correlations

In analyzing the multiple correlation used in correlating personality with degree of success, it was found, in this study, that personality characterisitcs of teachers are not significantly correlated with their success in Individually Prescribed Instruction.

Studies have varied markedly in their analysis of the Sixteen Personality Factor questionnaire for its predictive ability. Burdick (1963) stated that the correlations of the 16 personality traits with elementary student teachers; grade point average were low, with only two factors producing a significant correlation. She further stated that:

> The correlation of the 16 personality factors and the composite rating scores of student teachers success by the supervising teacher produced very low correlations with only four correlations showing significant correlations at the 5 percent level. (1963, p. 75)

Burdick's N was 86.

Carnie (1966) found, in correlating 94 Idaho superintendents willingness to accept change with their scores on the Sixteen Personality Factor questionnaire, that only two personality factors were statistically significant. Yet, Lawrence (1967) found, using multiple correlations and part correlations, that when the 16 P.F. scores of 163 superintendents were correlated with their willingness to accept change, six factors yielded significant coefficients.

Two possible reasons for Carnie and Burdick's results may be the small number of people being evaluated and the fact that the respondents were much alike in background, experience, and education. The Lawrence study used subjects with divergent backgrounds, experiences, and education. His study also had a large N in comparison with Carnie and Burdick.

Although this study's R was .58, the F-ratio has only .883. In comparison, Lawrence's F-ratio for the multiple correlation was 3.41, although his R was .52. One obvious reason for the different results of the two studies was,then, that this study had an N of 43, while Lawrence's study had an N of 163.

Carnie (1966) speculated that his lack of significant findings might be due to the homogeneous group he used for a sample. This might also be said for Burdick (1963). The respondents in the present study were probably less homogeneous than the Carnie and Burdick respondents, yet more homogeneous than the participants in the Lawrence study in the areas of background, experience, and education. Therefore, one should exercise caution in drawing

conclusions with regard to the relation of rated success in Individually Prescribed Instruction and personality factors as measured by the 16 P.F.

Differences

In analyzing the differences between the mean scores of the 16 personality source traits of more successful and less successful I.P.I. teachers, no significant differences were found.

It may be of interest to note that there was only one sten score or more difference in the teachers rated more successful and less successful on three of the 16 personality traits. They were factors B, F, and O. The more successful teachers tended to be more intelligent, sober, and apprehensive. It may also be noted that only two personality factors of Individually Prescribed Instruction teachers, B--intelligence and O--placid, were more than one sten score above or below the average adult population.

Associations

The associations of rated success in Individually Prescribed Instruction with number of years teaching experience, number of years a teacher remains in a school district, and the age of the teachers were not statistically significant. This evidence agreed with Hinman (1966) who found that age, experience, and tenure were not significantly related to principals' implementation of innovative programs.

Recommendations

The possibility of using personality characteristics, as measured by the Sixteen Personality Factor questionnaire, to assist in administrators' selection of future I.P.I. teachers, candidates for I.P.I. education programs, and self-evaluation by teachers who are anticipating employment in the program is questionable. The results of this research indicate that the relationship of the 16 P.F. to rated success in I.P.I. is too small to justify the 16 P.F.'s use as a predictor of success.

It may be of value for someone to replicate this study with a larger sample in as much as the small size of this sample lowered the liklihood of achieving significance.

Some studies that may assist in providing information or methods for selecting successful I.P.I. teachers might be: (1) determining of the influence of the inservice experience; (2) analysis of the various influences that teacher education programs and courses, practice teaching and other educational experiences have on the developing patterns of Individually Prescribed Instruction; (3) the inspection of characteristics of Individually

Prescribed Instruction teachers from various national, political, and cultural backgrounds.

As a final note, Morphet and Ryan stated that part of planning is "obtaining and analyzing pertinent information that will bring into focus present and emerging problems and needs." (1967, p. xii) Therefore, if Individually Prescribed Instruction emerges, as many believe it will, into the model of education much of our nation will follow, there must be a way to find the most competent people who know and can assist children in learning through Individually Prescribed Instruction.

Finally a speculative question: Can it be that I.P.I. is so effective a means of organizing for instruction that the effects of certain differences among teachers are overcome?

BIBLIOGRAPHY

Anonymous, 1967. "Experiment Remaking Face of Education." Education U.S.A.: A Special Weekly Report on Educational Affairs. Washington, D.C.: National School Public Relations Association.

Bell, Thomas O. 1966. A Study of Personality Characteristics of School Superintendents in Relation to Administrative Behavior. Unpublished Ed.D. Dissertation, Utah State University, Logan, Utah.

Bennis, Warren, Kenneth Beene, and Robert Chine. 1962. The Planning of Change: Readings in Applied Behavior Sciences. New York, New York: Holt, Rinehart and Winston.

Borg, Walter R. 1963. Educational Research: An Introduction. New York, New York: David McKay Company, Inc. 418 p.

Bos, James H. 1966. A Study of the Expectations of Educators for the Role and Personality of the Change Agent in an Educational Enterprise. Unpublished Ed.D. Dissertation, Utah State University, Logan, Utah.

Brunig, James L., and B. L. Kintz. 1968. Computational Handbook of Statistics. Palo Alto, California: Scott, Foresman and Company. 269 p.

Burdick, Lois A. 1963. "Analysis of the Sixteen Personality Factor Questionnaire and Elementary School Teachers at Indiana State College." Teachers College Journal 35:75. November.

Buros, Oscar K. (Ed.). 1961. Tests in Print. Highland Park, New Jersey: Gryphon Press. 289 p.

Carlson, Richard O. 1965. Adoption of Educational Innovations. The Center for the Advanced Study of Educational Administration, The University of Oregon: Eugene, Oregon. 84 p.

Carnie, George M. 1966. Personality Characteristics of School Superintendents in Relation to Their Willingness to Accept Innovations in Education. Unpublished Ed.D. Dissertation, Utah State University, Logan, Utah. 68 p.

Cattell, Raymond B. 1950. Personality: A Systematic, Theoretical and Factual Study. New York, New York: McGraw Hill Book, Co.

Conference of Teachers and Administrators. 1967. Using the Instructional System of Individually Prescribed Instruction. Philadelphia, Pennsylvania: Research for Better Schools, Inc.

Coombs, Arthur W. 1965. The Professional Education of Teachers: A Perceptual View of Teacher Preparation. Boston, Massachusetts: Allyn And Bacon, Inc. 68 p.

Eber, Herbert W. 1969. A recorded transcription with personnel of the Department of Educational Administration at Utah State University.

Education U.S.A. 1968. The Shape of Education for 1968-69. Washington, D. C.: National School Public Relations Association of the National Education Association.

Erickson, Donald A. 1965. "Changes in the Principalship: Cause for Jubliation or Dispair? National Elementary Principal 64:16-20. April.

Getzels, Jacob W., James M. Lipham, and Roald F. Campbell. 1968. Educational Administration as a Social Process. New York, New York: Harper and Row, Publishers. 258 p.

Giles, Douglas E. 1967. "Administrator: Catalyst of Suppressant to Dynamic Teaching?" Childhood Education 43:289-291. January.

Glines, Don E. 1967. "Planning and Effecting Needed Changes in Individual Schools." In Edgar L. Morphet and Charles O. Ryan (Eds.) 1967. Designing Education for the Future: Planning and Effecting Needed Changes in Education. Denver, Colorado: Publishers Press, Inc.

Guilford, J. P. 1964. Fundamental Statistics in Psychology and Education. New York, New York: McGraw Hill Book Comapny. 605 p.

Hemphill, John, Daniel E. Griffiths, and Norman Frederiksen. 1962. Administrative Performance and Personality. New York, New York: Teachers College, Columbia University. pp. 356-358.

Hendrix, Vernon L. 1964. "Relationships Between Personnel Policies and Faculty Personality Characteristics in Public Junior Colleges." California Journal of Educational Research 15:34-42.

Henry, Nelson B. (Ed.). 1962. National Society for the Study of Education. Chicago, Illinois: The University of Chicago Press 61(1):44-61.

Hinman, Edna F. 1966. Personality Characteristics of Clark County School District Principals Related to the Degree of their Implementation of Innovation. Unpublished Ed.D. Dissertation, Utah State University, Logan, Utah.

Holt, Howard B. 1964. "The Educational Uses of Change." Phi Delta Kappan 46:188-189. December.

Howe, Harold, II. 1968. American Association of School Administrators Official Report. Washington, D.C.: A.A.S.A. pp. 145-156.

Johansen, John H. 1967. "The Relationship Between Teachers Perceptions of Influence in Local Curriculum Decision-Making and Curriculum Implementation." The Journal of Educational Research 61(2):81-83. October.

Johnson, Homer M., George M. Carnie, and Clifford J. Lawrence. 1967. Personality Characteristics of School Superintendents in Relation to Their Willingness to Accept Innovation In Education. Project No. 6-8273, Grant No. OEG 3-6-068273-1387. Department of Educational Administration, Utah State University, Logan, Utah. July.

Kemp, C. G. 1963. "Improvement of Critical Thinking in Relation to Open-Closed Belief Systems." The Journal of Experimental Education 31:321-322.

Lawrence, Clifford J. 1967. Personality Characteristics of School Superintendents Who Implement Innovation in the Public Schools. Unpublished Ed.D. Dissertation, Utah State University, Logan, Utah. 101 p.

Lorr, Maurice. 1965. The Sixth Mental Measurement Yearbook. Highland Park, New Jersey: The Gyphron Press. 174 p.

Lortie, Dan C. 1964. "Change and Exchange: Reducing Resistance to Innovation." Administrator's Notebook 12(6):2. February.

McNemar, Quinn. 1962. Psychological Statistics. New York, New York: John Wiley and Sons, Inc. 450 p.

Miller, J. T. 1956. "Personality Attributed of Buyers vs. Nonbuyers." Address given May 26, 1956, at 1956 Annual Conference of American Association for Public Opinion Research, Buck Hill Falls, Pennsylvania: Meredith Publishing Company.

Moorhead, Jennelle. 1966. "Who's Blocking Educational Change?" The P.T.A. Magazine 60:2-3. March.

Morphet, Edgar L., Joe Johns, and Theodore L. Reller. 1967. Educational Organization and Administration. Englewood Cliffs, New Jersey: Prentice-Hall, Inc. 569 p.

Morphet, Edgar L. and Charles O. Ryan (Eds.). 1967. Designing Education for the Future: Planning and Effecting Needed Changes in Education. New York, New York: Citation Press.

Moshy, Claire A. 1968. Teaching in I.P.I. Philadelphia, Pennsylvania: Research for Better Schools, Inc., Regional Educational Laboratory. Volumes 1-5. 1945 p.

Neill, George W. (Ed.). 1968. Individually Prescribed Instruction. Washington, D. C.: National School Public Relations Association. 32 p.

Perkins, William D., and John T. Conover. 1965. "Patterns of Resistance to Change in Science Teaching." Science Education 49:339-348. October.

Reynolds, James A. 1966. Innovation Related to Administrative Tenure, Succession and Orientation. Paper presented February 19, 1966, at the Annual Convention of the American Educational Research Association, Chicago, Illinois.

Ryan, David C. 1964. Contemporary Research on Teacher Effectiveness. New York, New York: Holt, Rinehart, and Winston, 101 p.

Scanlon, Dr. Robert G. (No date). The History of I.P.I. Philadelphia, Pennsylvania: Research for Better Schools, Inc. A recording transcription prepared by the Northwest Regional Educational Laboratory.

Trump, J. Lloyd. 1968. "Rx Ingredients of Change." NASSP Bulletin 47:11-20. May.

White, Kinnard. 1965. "Personality Characteristics of Educational Leaders: A Comparison of Administrators and Researchers." The School Review 73(3):292-299. Autumn.

APPENDIXES

Appendix A

Table 10. Beta weights, normalized Beta weights, and part variance components computed from correlating each personality factor and degree of success

Personality Factor	Beta Weight	Normalized Beta Weight	Part Variance Component	F
A	(-).199	(-).106	(-).017	.695
B	.209	.112	.019	.772
C	(-).033	(-).018	(-).000	.021
E	.148	.078	.009	.381
F	(-).451	(-).240	(-).080	3.574*
G	.033	.018	.000	.021
H	.559	.298	.118	5.501*
I	(-).228	(-).122	(-).022	.918
L	(-).449	(-).239	(-).080	3.551*
M	.228	.121	.022	.914
N	(-).264	(-).141	(-).029	1.225
O	.086	.046	.003	.132
Q_1	(-).265	(-).141	(-).029	1.242
Q_2	.014	.008	.000	.004
Q_3	(-).080	(-).042	(-).003	.111
Q_4	.337	.180	.047	2.099

*Alpha = .05
df = 1/41
Reject if F = 3.225

**Alpha = .01
df = 1/41
Reject if F = 5.165

a. The (1) sign is associated with the part correlation from which the part variance components was computed. It means that to the extent that this part correlation exists at all, it is negative.

b. The computational formula for the part variance component is $\frac{B\ normalized^2}{B\ normalized^2 + (1-R^2)}$ Note that this formula is different from Table 5 and was the first change made by Eber after the Lawrence (1967) study.

c. Normalized Beta weights are Betas that have been weighted in order that the sum of their squares is equal to R^2. The Computational forumla for Beta normalized is: $\frac{B_1}{\sum_{i=1}^{\tau} \left(\frac{Bi^2}{R^2}\right)}$

Appendix B

Table 11. Beta weights, normalized Beta weights, and part variance components computed from correlating each personality factor and degree of success

Personality Factor	Beta Weight	Normalized Beta Weight	Part Variance Component	F
A	(-).199	(-).106	(-).017	.441
B	.209	.112	.019	.490
C	(-).033	(-).018	(-).000	.013
E	.148	.078	.009	.241
F	(-).451	(-).240	(-).080	2.267
G	.033	.018	.000	.013
H	.559	.298	.118	3.489
I	(-).228	(-).122	(-).022	.582
L	(-).449	(-).239	(-).080	2.251
M	.228	.121	.022	.579
N	(-).264	(-).141	(-).029	.777
O	.086	.045	.003	.083
Q_1	(-).265	(-).042	(-).029	.788
Q_2	.014	.180	.000	.003
Q_3	(-).080		(-).003	.070
Q_4	.337		.047	1.331

Alpha = .05
de = 1/26
Reject if F = 4.22

a. The (-) sign is associated with the part correlation from which the part variance components was computed. It means that to the extent that this part correlation exists at all, it is negative.

b. The computational formula for the part variance component is $\frac{\text{B normalized}^2}{\text{B normzlized}^2 + (1-R^2)}$ Note that this formula is different from Table 5 and was the first change made by Eber after the Lawrence (1967) study.

c. Normalized Beta weights are Betas that have been weighted in order that the sum of their squares is equal to R^2 the computational formula for Beta normalized is $\frac{B_1}{\sum_{i=1}^{r}\left(\frac{Bi^2}{R^2}\right)}$

d. Note the change of degrees of freedom from Table 5. This was the second change made by Eber after the Lawrence (1967) study.

Appendix C

Confidential Information

RATING SCALE OF TEACHER IMPLEMENTATION OF INDIVIDUALLY PRESCRIBED INSTRUCTION

Directions: This rating scale is composed of a series of short, descriptive statements of ways in which an I.P.I. teacher may behave. Indicate the frequency with which he properly engages in each form of the behaviors listed by checking one of the five adverbs for each behavior. Answer as honestly as possible what is true to you. Do not merely mark what seems "the right thing to say."

Developing a Prescription	Always	Often	Occasionally	Seldom	Never
1. Fails to use Placement Profile analysis in developing a prescription.					
2. Uses Placement Test analysis in developing a prescription.					
3. Fails to use Unit Test Record analysis in developing a prescription.					
4. Uses analysis of student behavior in developing a prescription.					
5. Fails to use Unit Pre-test analysis in developing a prescription.					
6. Uses Unit Post-test analysis in developing a prescription.					
7. Prescribes improper materials and instructional techniques.					
8. Records proper information on the prescription sheet.					
Placement Tests	Always	Often	Occasionally	Seldom	Never
9. Selects improper starting level for placement testing.					
10. Administers Placement tests.					
11. Places students according to placement guidelines.					
12. Fails to assign and administer additional testing according to placement guidelines.					

13. Starts students working in first unit to which they have been placed by pre-testing.					
Pre-Test	Always	Often	Occasion-ally	Seldom	Never
14. Fails to assign an student to a unit selected from the placement profile.					
15. Administers pre-tests for the unit.					
16. Examines Pre-test scores and assigns students based upon the results.					
Post Test	Always	Often	Occasion-ally	Seldom	Never
17. Uses post-test to review student's performance in prescription analysis.					
18. Fails to prescribe and administer unit post-tests.					
19. Identifies, by post-testing, the skills unmastered.					
20. Writes prescriptions for unmastered skills found during post-testing.					
21. Upon post-test scores of 85% or higher, moves students to next unmastered test.					
22. Fails to alternate the unit post test with unit pre-test for second post-test.					
CET's	Always	Often	Occasion-ally	Seldom	Never
23. Determines probability of success on CET's.					
24. Fails to prescribe and administer CET's for skill.					
25. Examines CET scores and uses results in placing students.					

Diagnosis of Learning Difficulties	Always	Often	Occasionally	Seldom	Never
26. Fails to observe student behavior as he handles materials manipulative devices and equipment in working out solu- to problems.					
27. Observes student behavior as he responds to discussions and answers questions.					
28. Fails to determine proper time a student should spend on a unit skill.					
29. Uses the Placement tests in diagnosing student's learning difficulties.					
30. Uses the unit Pre-test in diagnosing student's learning difficulties.					
31. Fails to use CET's in diagnosing student learning difficulties.					
32. Uses unit Post-test in diagnosing student learning difficulties.					
33. Determines pattern(s) of errors from test analysis.					
34. Is unable to determine frequency of errors from test analysis.					
Instructional Team Planning	Always	Often	Occasionally	Seldom	Never
35. In instructional team planning, fails to provide specific descriptive data about students and classes.					
36. In instructional team planning, does not cooperate in assiging students to teachers for the week.					
37. Contributes in identifying instructional problems in planning sessions.					
38. Contributes in solving instructional problems in planning sessions.					

	Always	Often	Occasion-ally	Seldom	Never
39. Does not accept and implement planning team decision(s).					
40. Acts as planning team chairman as needed.					
41. Fails to report and suggest procedures for smoother operation of the I.P.I. program.					

CONFIDENTIAL INFORMATION

Appendix D

Bipolar Descriptions of Source Traits

for 16 Personality Factors

Factor A

WARM SOCIALBLE	vs.	ALOOF, STIFF
Good Natured, Easy Going	vs.	Aggressive, Grasping, Critical
Ready to Cooperate	vs.	Obstructive
Attentive to People	vs.	Cool Aloof
Soft-hearted, Kindly	vs.	Hard, Precise
Trustful	vs.	Suspicious
Adaptable	vs.	Rigid
Warm-hearted	vs.	Cold

Factor B

BRIGHT	vs.	DULL
Conscientious	vs.	Of Lower Morale
Persevering	vs.	Quitting
Intellectual, Cultured	vs.	Boorish

Factor C

MATURE, CALM	vs.	EMOTIONAL, IMMATURE, UNSTABLE
Emotionally Mature	vs.	Lacking in frustration tolerance
Emotionally Stable	vs.	Changeable (in attitudes)
Calm, Phlegmatic	vs.	Showing General Emotionality
Realistic about life	vs.	Evasive (on awkward issues, facing personal decisions)
Absense of Neurotic Fatigue	vs.	Neurotically Fatigued
Placid	vs.	Worrying

Factor E

AGGRESSIVE, COMPETITIVE	vs.	"MILK-TOAST," MILD
Assertive, Self-Assured	vs.	Submissive
Independent Minded	vs.	Dependent
Hard, Stern	vs.	Kindly, Soft-Hearted
Solemn	vs.	Expressive
Unconventional	vs.	Conventional
Tough	vs.	Easily Upset
Attention Getting	vs.	Self-Sufficient

Factor F

ENTHUSIASTIC, HAPPY-GO-LUCKY	vs.	GLUM, SOBER, SERIOUS
Talkative	vs.	Silent, Introspective
Cheerful	vs.	Depressed
Serene, Happy-go-lucky	vs.	Concerned, Brooding
Frank, Expressive	vs.	Incommunicative, Smug
Quick, Alert	vs.	Languid, Slow

Factor G

CONSCIENTIOUS, PERSISTENT	vs.	CASUAL, UNDEPENDENT
Persevering, Determined	vs.	Quitting, Fickle
Responsible	vs.	Frivolous
Emotionally Mature	vs.	Demanding, Impatient
Consistently Ordered	vs.	Relaxed, Indolent
Conscientious	vs.	Undependable
Attentive to People	vs.	Obstructive

Factor H

ADVENTUROUS, "THICK-SKINNED"	vs.	SHY, TIMID
Adventurous, Likes Meeting People	vs.	Shy, Withdrawn
Active, Overt Interest in Opposite Sex	vs.	Retiring in Face of Opposite Sex
Responsive, Genial	vs.	Aloof, Cold, Self-Contained
Friendly	vs.	Apt to be Embittered
Impulsive, Frivolous	vs.	Restrained, Conscientious
Emotional, Artistic Interests	vs.	Restricted Interests
Carefree, Does not see Danger Signals	vs.	Careful, Considerate, Quick to See Dangers

Factor I

SENSITIVE, EFFEMINATE	vs.	TOUGH, REALISTIC
Demanding, Impatient, Subjective	vs.	Realistic, Expects Little
Dependent, Seeking Help	vs.	Self-reliant, Taking Responsibility
Kindly, Gentle	vs.	Hard (to point of cynicism)
Artistically Fastidious, Affected	vs.	Few Artistic Responses (but not lacking taste)
Imaginative in Inner Life and in Conversation	vs.	Unaffected by "Fancies"
Acts on Sensitive Intuition	vs.	Acts on Practical, Logical Evidence
Attention Seeking, Frivolous	vs.	Self-Sufficient
Hypochondriacal, Anxious	vs.	Unaware of Physical Disabilities

Factor L

SUSPECTING, JEALOUS	vs.	ACCEPTING, ADAPTABLE
Jealous	vs.	Accepting
Self-Sufficient	vs.	Outgoing
Suspicious	vs.	Trustful
Withdrawn, Brooding	vs.	Open, Ready to Take a Chance
Tyrannical	vs.	Understanding and Permissive, Tollerant
Hard		Soft-Hearted
Irritable		Composed and Cheerful

Factor M

BOHEMIAN INTROVERTED, ABSENT-MINDED	vs.	PRACTICAL, CONCERNED WITH FACTS
Unconventional, Self-Absorbed	vs.	Conventional, Alert to Practical needs
Interested in Art, Theory, Basic Beliefs	vs.	Interests Narrowed to Immediate Issues
Imaginative, Creative	vs.	No Spontaneous Creativity
Frivolous, Immature in Practical Judgment	vs.	Sound, Realistic, Dependable, Practical Judgment
Generally Cheerful, but Occasional Hysterical Swing of "Giving Up"	vs.	Earnest, Concerned or Worried but Very Steady

Factor N

SOPHISTICATED, POLISHED	vs.	SIMPLE, UNPRETENTIOUS
Polished, Socially Alert	vs.	Socially Clumsy and "Natural"
Exact, Calculating Mind	vs.	Vague and Sentimental Mind
Aloof, Emotionally Disciplined	vs.	Warm, Gregarious, Spontaneous
Esthetically Fastidious	vs.	Simple Tastes
Insightful Regarding Self	vs.	Lacking Self-Insight
Insightful Regarding Others	vs.	Unskilled in Analyzing Motives
Ambitious, Possibly Insecure	vs.	Content with What Comes
Expedient, "Cuts Corners"	vs.	Trusts in Accepted Values

Factor O

TIMID, INSECURE	vs.	CONFIDENT, SELF-SECURE
Worrying, Anxious	vs.	Self-confident
Depressed	vs.	Cheerful, Resilient
Sensitive, Tender, Easily Upset	vs.	Tough, Placid
Strong Sense of Duty	vs.	Expedient
Exacting, Fussy	vs.	Does Not Care
Hypochondriacal	vs.	Rudely Vigorous
Phobic Symptoms	vs.	No Fears
Moody, Lonely, Brooding	vs.	Given to Simple Action

Factor Q_1

RADICALISM	vs.	CONSERVATISM OF TEMPERAMENT

Factor Q_2

SELF-SUFFICIENT, RESOURCEFUL	vs.	SOCIABLY GROUP DEPENDENT

Factor Q_3

CONTROLLED, EXACTING WILL POWER	vs.	UNCONTROLLED, LAX

Factor Q_4

TENSE, EXCITABLE	vs.	PHLEGMATIC, COMPOSED

Reliability of the Sixteen Personality Factor Questionnaire.

The 16 P.F. is a personality test based on factor analysis which measures 16 factors or traits of the respondent's personality. Split-half reliabilities for each of the 16 factor scales range from .71 to .93, averaging about .84. Internal construct validities range from .73 to .96, averaging approximately .88. (Cattell, 1957, p. 2)

Appendix E

PERSONAL DATA SHEET

You will not be identified personally with your responses to the questionnaire. All responses will be processed by IBM computer and only group socres will be reported in this study.

Date_____

Name_____ Age_____
Last First Middle Initial

Number of years teaching experience (including this one) in present school district_____.

Total years teaching experience (including this one)_____.